

CLAIM AMENDMENTS

1. (Currently Amended) A variable geometry turbine comprising a turbine wheel supported in a housing for rotation about a turbine axis, an annular inlet passageway extending radially inwards towards the turbine wheel, the annular inlet passageway being defined between a radial wall of a moveable wall member and a facing wall of the housing, the moveable wall member being mounted within an annular cavity provided within the housing and having inner and outer annular surfaces, the wall member being moveable axially between first and second positions to vary the width of the inlet passage way, the second axial position being closer to the said facing wall of the housing than the first axial position, the moveable wall member having a first annular flange extending axially from the radial wall into said cavity in a direction away from said facing wall of the housing, a first annular seal being disposed between said first annular flange and the adjacent inner or outer annular surface of the cavity, said first annular seal being mounted to one of said first annular flange or said adjacent annular surface of the cavity;

wherein at least one ~~or more~~ inlet bypass passages is ~~are~~ provided in the other of said first annular flange and said adjacent annular cavity surface, such that said first annular seal and said at least one bypass passage ~~passageways~~ move

axially relative to one another as the moveable wall member moves between said first and second positions; and

wherein said first annular seal and said at least one inlet ~~the or each~~ bypass passage are axially located such that with the annular wall member in said first position the seal prevents exhaust gas flow through the cavity but with said moveable wall member in the second position said at least one inlet ~~the or each~~ bypass passage permits the flow of exhaust gas through said cavity to the turbine wheel thereby bypassing the annular inlet passageway.

2. (Original) A variable geometry turbine according to claim 1, wherein the annular seal is mounted to said annular surface of the cavity, and the or each bypass passage comprises an aperture through said first annular flange of the moveable wall member.

3. (Original) A variable geometry turbine according to claim 2, wherein the annular seal is located within an annular groove provided within said annular surface of the cavity.

4. (Original) A variable geometry turbine according to claim 1, wherein said annular seal is mounted to said first annular flange, and the or each bypass passage comprises a recess provided in the adjacent annular surface of the cavity.

5. (Original) A variable geometry turbine according to claim 4, wherein said annular seal is located within an annular

groove provided in an outer surface of said first annular flange.

6. (Original) A variable geometry turbine according to claim 1, wherein said first annular flange extends axially from the radially outermost periphery of the radial wall of the moveable wall member, and said first annular seal is disposed between the first annular flange and said outer surface of the cavity.

7. (Original) A variable geometry turbine according to claim 6, wherein said moveable wall member comprises a second annular flange extending axially into said cavity from the radially innermost periphery of the radial wall, and a second annular seal is mounted to one of said second annular flange or said inner annular surface of the cavity, and one or more inlet bypass passages are provided in the other of said second annular flange and said inner cavity surface.

8. (Original) A variable geometry turbine according to claim 1, wherein said first annular flange extends axially into said cavity from the radially innermost periphery of the radial wall, and said first annular seal is disposed between the first annular flange and said inner surface of the cavity.

9. (Original) A variable geometry turbine according to claim 8, wherein apertures are provided through said radial wall of the moveable wall member whereby the cavity is in fluid

communication with the inlet passageway, said apertures being arranged such that in use a resultant force is exerted on the moveable wall member which force is always in a single axial direction.

10. (Original) A variable geometry turbine according to claim 1, wherein when the moveable wall member is in said second position the width of the inlet passageway is at a minimum.

11. A variable geometry turbine according to claim 1, wherein when the moveable wall member is between said first position and a third position intermediate the first and second positions the or each seal prevents flow of gas through said cavity via said bypass passages, and wherein when said moveable wall member is between said third position and said second position said bypass passages permit the flow of gas through said cavity, and wherein said third position is closer to said second position than to said first position.

12. (Original) A variable geometry turbine according to claim 11, wherein the positions between said first and third positions correspond to a normal high efficiency operating mode of the turbine, and positions between said third and second position correspond to an exhaust braking mode of operation of the turbine.

13. (Original) A variable geometry turbine according to claim 1, comprising a plurality of said bypass passages

circumferentially arranged around the respective annular flange or annular cavity surface.

14. (Original) A variable geometry turbine according to claim 1, comprising nozzle vanes extending into the inlet passage way.

15. (Original) A variable geometry turbine according to claim 1, wherein said nozzle vanes extend from said nozzle ring.

16. (Currently Amended) A turbocharger having comprising a variable geometry turbine ~~according to claim 1.~~ comprising:

a turbine wheel supported in a housing for rotation about a turbine axis, an annular inlet passageway extending radially inwards towards the turbine wheel, the annular inlet passageway being defined between a radial wall of a moveable wall member and a facing wall of the housing, the moveable wall member being mounted within an annular cavity provided within the housing and having inner and outer annular surfaces, the wall member being moveable axially between first and second positions to vary the width of the inlet passage way, the second axial position being closer to said facing wall of the housing than the first axial position, the moveable wall member having a first annular flange extending axially from the radial wall into said cavity in a direction away from said facing wall of the housing, a first annular seal being disposed between said first annular flange and the adjacent inner or outer annular surface of the cavity,

said first annular seal being mounted to one of said first annular flange or said adjacent annular surface of the cavity;

wherein at least one inlet bypass passage is provided in the other of said first annular flange and said adjacent annular cavity surface, such that said first annular seal and said at least one inlet bypass passage move axially relative to one another as the moveable wall member moves between said first and second positions; and

wherein said first annular seal and said at least one inlet bypass passage are axially located such that with the annular wall member in said first position the seal prevents exhaust gas flow through the cavity but with said moveable wall member in the second position said at least one inlet bypass passage permits the flow of exhaust gas through said cavity to the turbine wheel thereby bypassing the annular inlet passageway.

17. (Currently Amended) A turbocharged internal combustion engine ~~comprising~~ having a turbocharger ~~according to claim 15.~~ with a variable geometry turbine comprising:

a turbine wheel supported in a housing for rotation about a turbine axis, an annular inlet passageway extending radially inwards towards the turbine wheel, the annular inlet passageway being defined between a radial wall of a moveable wall member and a facing wall of the housing, the moveable wall member being mounted within an annular cavity provided within the housing and

having inner and outer annular surfaces, the wall member being moveable axially between first and second positions to vary the width of the inlet passage way, the second axial position being closer to said facing wall of the housing than the first axial position, the moveable wall member having a first annular flange extending axially from the radial wall into said cavity in a direction away from said facing wall of the housing, a first annular seal being disposed between said first annular flange and the adjacent inner or outer annular surface of the cavity, said first annular seal being mounted to one of said first annular flange or said adjacent annular surface of the cavity;

wherein at least one inlet bypass passage is provided in the other of said first annular flange and said adjacent annular cavity surface, such that said first annular seal and said at least one bypass passage move axially relative to one another as the moveable wall member moves between said first and second positions; and

wherein said first annular seal and said at least one inlet bypass passage are axially located such that with the annular wall member in said first position the seal prevents exhaust gas flow through the cavity but with said moveable wall member in the second position said at least one inlet bypass passage permits the flow of exhaust gas through said cavity to the turbine wheel thereby bypassing the annular inlet passageway.

18. (Currently Amended) A powered vehicle ~~comprising~~
including a turbocharged internal combustion engine according to
claim 17, comprising:

a turbocharger with a variable geometry turbine, said
variable geometry turbine comprising:

a turbine wheel supported in a housing for rotation about a
turbine axis, an annular inlet passageway extending radially
inwards towards the turbine wheel, the annular inlet passageway
being defined between a radial wall of a moveable wall member
and a facing wall of the housing, the moveable wall member being
mounted within an annular cavity provided within the housing and
having inner and outer annular surfaces, the wall member being
moveable axially between first and second positions to vary the
width of the inlet passage way, the second axial position being
closer to said facing wall of the housing than the first axial
position, the moveable wall member having a first annular flange
extending axially from the radial wall into said cavity in a
direction away from said facing wall of the housing, a first
annular seal being disposed between said first annular flange
and the adjacent inner or outer annular surface of the cavity,
said first annular seal being mounted to one of said first
annular flange or said adjacent annular surface of the cavity;
wherein at least one inlet bypass passage is provided in
the other of said first annular flange and said adjacent annular

cavity surface, such that said first annular seal and said at least one inlet bypass passage move axially relative to one another as the moveable wall member moves between said first and second positions;

wherein said first annular seal and said at least one inlet bypass passage are axially located such that with the annular wall member in said first position the seal prevents exhaust gas flow through the cavity but with said moveable wall member in the second position said at least one inlet bypass passage permits the flow of exhaust gas through said cavity to the turbine wheel thereby bypassing the annular inlet passageway;
and

wherein operating said turbocharger with the annular wall member at or adjacent said second position provides an exhaust braking function.